Please amend the paragraph bridging pages 9 and 10 as follows:

After the completion of entering all the personal body information, the display 8 shows a message indicating that the handgrips 5A and 5B should be grasped. Then the person under test picks up the handgrips 5A and 5B held in the grip holders 7A and 7B with his right and left hands, respectively. Now, the handgrips 5A and 5B are grasped with the hands of the person with his palms in contact with the current supplying and voltage measurement electrodes. Thereafter, the person naturally drops [falls] down both arms to take a pose for measurement, thereby starting the measurement, in step S6. Fig. 3(c) shows the condition in which the measurement of bioelectrical impedance is conducted [conducting].

REMARKS

Claims 1 and 7-17 are pending in the application. Claim 1 has been amended. Claims 3-6 have been cancelled. Claims 7-17 have been added.

In the Office Action, it was pointed out that no English language abstract or explanation of relevance was furnished for French patent 2698779, which was listed in the Information Disclosure Statement filed April 4, 2001. An English language abstract of this reference is being filed concurrently herewith, to comply with 37 CFR 1.98(a)(3).

The drawings were objected to because of a misspelling in Fig. 5, and because Fig. 4 is not labeled as prior art. Proposed drawings corrections are submitted herewith which are believed to be fully responsive to the Examiner's concerns.

The drawings were also objected to because they do not include the reference numerals "2A" and "2B" mentioned in the specification. The specification has been amended to eliminate reference numerals 2A and 2B; therefore, they do not need to appear in the drawings.

The specification was objected to because of various grammatical errors. The specification has been amended to correct these and other grammatical and ideomatic errors.

Claims 5 and 6 were objected to as being in improper multiple dependent form. This objection is moot, since claims 5 and 6 have been cancelled.

Claims 1, 3 and 4 were rejected under 35 U.S.C. §103(a) as being unpatentable over the admitted prior art (APA) discussed with reference to Figs. 4 and 5 of the application, in view of U.S. Patent 5,579,782 (Masuo). This rejection is respectfully traversed. Applicants respectfully request reconsideration and allowance of the claims in view of the following arguments.

The present invention relates to a body composition measuring apparatus with a built-in weight meter based on bioelectrical impedance measurement, wherein the person under test steps on a weight meter, which immediately and automatically measures the person's weight. The person then enters personal information such as gender, age, and height using a data input device, and grabs hand electrodes to measure bioelectrical impedance. The apparatus then estimates the person's body composition (i.e., body fat composition) based on the output of the weight meter, the data from the data input device and the impedance measurement. Because the inventive apparatus measures weight first, it is easy to use (i.e., the personal information can be entered from a comfortable position standing on the scale). It is also more accurate than prior art devices, because it avoids variation in body water amount due to movement of the body immediately before the impedance measurement, which body water variation adversely affects the accuracy of body composition measurement.

The obviousness rejection of claims 3 and 4 is moot, since these claims have been cancelled.

Regarding the obviousness rejection of independent claim 1, it is admitted in the Office Action that the APA does not teach or suggest the important claimed feature that the body information is entered using the data input device after measuring the weight. However, it is contended that Masuo teaches this feature, and teaches that the order of weight measurement and data entry is unimportant, and that it would have been obvious to modify the APA to execute the steps of weight measurement, body information entry, and impedance measurement in any order.

Applicants disagree. Masuo teaches that the user weighs himself, then must enter the measured weight manually, along with other body information (see col. 6:65-66). In contrast, amended independent claim 1 and new independent claim 7 recite that the body composition measurement is based on an output of the weight meter. In other words, the weight is automatically entered from the weight meter to the CPU so the measured weight value can be used by the CPU to estimate body composition. This recitation is supported in the specification, for example, at page 8, lines 10-11 and page 9, lines 10-12. The APA also has this feature.

It would not have been obvious to combine Masuo and the APA as suggested in the Office Action to yield the invention of claims 1 and 7, because they work in different ways. Masuo requires manual entry of weight information. Masuo can therefore suggest that the order of entering weight information and personal data does not matter if the weight and personal data are entered manually. However, Masuo cannot teach or suggest that the order of entering such information is irrelevant if the weight is to be entered automatically and the rest of the personal data is to be entered manually, as in the APA and in the claimed invention. One skilled in the art, looking at Masuo and the APA, would know that the APA needs to have personal information entered prior to the weight measurement. But Masuo would not have motivated them to switch this order to yield the claimed invention, since Masuo teaches manual entry of

weight information, and does not disclose any advantages of measuring weight first. Simply because a reference shows a particular feature, it does not necessarily follow that it would have been obvious to modify another reference with that feature. There must be an objective teaching in the reference that would have motivated a skilled artisan to make such a modification. No such objective teaching has been shown in the Office Action, because none exists.

Moreover, the Office Action's contention that the steps of entering personal data, measuring impedance, and measuring weight is unimportant as long as all of the steps are completed before the body composition calculation is not correct. As taught by the present application at page 4, lines 19-24, this order is important because movement of the body immediately before measurement can result in variation in body water amount, which adversely affects the accuracy of body composition measurement. This is not taught in the APA or in Masuo.

Consequently, independent claims 1 and 7 are patentable, as are new dependent claims 8-17, which depend from claims 1 and 7.

Reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. §103(a) is respectfully requested.

Accordingly, it is believed that all pending claims are now in condition for allowance. Applicant therefore respectfully requests an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicant's representative at the telephone number shown below.

To the extent necessary, if any, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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CLEAN COPY OF AMENDED CLAIMS AND SPECIFICATION

Claims 1 now reads as follows:

1. A body composition measuring apparatus with a built-in weight meter based on bioelectrical impedance measurement, comprising:

a weight meter for measuring a weight of a person under test;

a data input device;

an impedance measurement device; and

a CPU, wherein

personal body information is entered using said data input device after measuring the weight; and

said CPU estimates the body composition of the person under test based upon an output of said weight meter and data from said input device and said impedance measurement device.

New claims 7 through 17 read as follows:

7. A body composition measuring apparatus with a built-in weight meter based on bioelectrical impedance measurement comprising:

a weight meter for measuring a weight of a person under test;

a data input device;

an impedance measurement device; and

a CPU, wherein

said weight meter determines a no-load output thereof immediately after power up of said apparatus;

personal body information is entered using said data input device after measuring the

weight; and

said CPU estimates the body composition of the person under test based upon a output of said weight meter and data from said input device and said impedance measurement device.

8. A body composition measuring apparatus with a built-in weight meter according to Claim 1 or 7 wherein said weight meter measures the weight in response to detecting the load.

9. A body composition measuring apparatus with a built-in weight meter according to Claim 1 or 7 in which said personal body information is entered while the person under test stands on said weight meter.

10. A body composition measuring apparatus with a built-in weight meter according to Claim 1 or 7 in which said personal body information includes at least one of the following: the height, the sex and the age of the person under test.

11. A body composition measuring apparatus with a built-in weight meter according to Claim 1 or 7 in which said body composition includes at least one of the following: the body fat percentage, the fat mass, the amount of body water and the amount of muscle of the person under test.

12. A body composition measuring apparatus with a built-in weight meter according to Claim 1 or 7, wherein said weight meter measures the weight in response to detecting the load, and wherein said personal body information is entered while the person under test stands on said

weight meter.

13. A body composition measuring apparatus with a built-in weight meter according to Claim 1 or 7, wherein said weight meter measures the weight in response to detecting the load, and wherein said personal body information includes at least one of the following: the height, the sex and the age of the person under test.

14. A body composition measuring apparatus with a built-in weight meter according to Claim 1 or 7, wherein said personal body information is entered awhile the person under test stands on said weight meter, and wherein said personal body information includes at least one of the following: the height, the sex and the age of the person under test.

15. A body composition measuring apparatus with a built-in weight meter according to Claim 1 or 7, wherein said weight meter measures the weight in response to detecting the load, and wherein said body composition includes at least one of the following: the body fat percentage, the fat mass, the amount of body water and the amount of muscle of the person under test.

16. A body composition measuring apparatus with a built-in weight meter according to Claim 1 or 7, wherein said personal body information is entered while the person under test stands on said weight meter, and wherein said body composition includes at least one of the following: the body fat percentage, the fat mass, the amount of body water and the amount of muscle of the person under test.

17. A body composition measuring apparatus with a built-in weight meter according to Claim 1 or 7, wherein said body composition includes at least one of the body fat percentage, the fat mass, the amount of body water and the amount of muscle of the person under test, and wherein said personal body information includes at least one of the height, the sex and the age of the person under test.

IN THE SPECIFICATION:

The paragraph bridging pages 1 and 2 now reads as follows:

It is already known to estimate body composition of a human body from the measurement of living body impedance. For instance, it has been found in an article "Assessment of fat-free mass using bioelectrical impedance measurement of the human body", *The American Journal of Clinical Nutrition*, 41 (4) 810-817, 1985. This principle of operation may be applied to measure the fat mass for a person under test. For instance, any impedance between extreme parts of the person such as hands and feet may be measured according to four-terminal electrode measurement theory. The impedance thus measured, together with the personal body information such as the weight, height, sex and age of the person under test, can be used to estimate the amount of body water and the fat mass for the person. For instance, (Examined) Patent Publication H5-49050 discloses an apparatus for measuring the weight of a person under test concurrent with the fat mass. Various types of apparatus utilizing this principle have already been put into the market.

The first full paragraph on page 2 now reads as follows:

A body composition measuring apparatus based on bioelectrical impedance measurement

is constructed such that electrodes directly contact the skin of a person under test. Then very small AC current is actually passed through the body of the person for measuring the bioelectrical impedance of the person. Then the body fat percentage and the fat mass for the person is determined from the measured bioelectrical impedance and the preset personal body information. In this regard, the personal body information is essential data and it is usually entered before starting the measurement operation.

The second paragraph on page 3 now reads as follows:

As described above, in the conventional body composition measuring apparatus with the built-in weight meter, no load should be applied to the weight meter up to the time that the personal body information is entered and the zero-point or the no-load weight meter output is determined. Therefore, only after the completion of entering or setting the personal body information by the person who does not get on the weight meter, the conventional measuring apparatus can operate to measure the weight and then the bioelectrical impedance for the person.

Paragraph 6 on page 5 now reads as follows:

said weight meter takes in a no-load output thereof immediately after power up of said apparatus; and

[Paragraph 7 on page 5 as follows:]

personal body information is entered using said data input device after measuring the weight.

B5 (cont'd)

Paragraph 8 on page 5 now reads as follows:

Preferably, said body composition is at least one of the following: the body fat percentage, the fat mass, the amount of body water and the amount of muscle.

The paragraph bridging pages 7 and 8 now reads as follows:

The circuit configuration of the body composition measuring apparatus 1 based upon the bioelectrical impedance measurement is not described here in detail, because it is already known in the art. It is sufficient to say that the body composition measuring apparatus 1 includes a CPU for performing a various kind of arithmetic operations and control functions, and a constant current source for producing a constant current or a measuring current in response to the instruction from the CPU. The constant current source is connected at its output terminals to the current supplying foot electrodes 3A, 3B and to the current supplying electrodes for hands mounted on the handgrips 5A, 5B.

B6

The first full paragraph on page 8 now reads as follows:

The voltage measuring electrodes 4A, 4B and the voltage measuring electrodes mounted on the handgrips 5A, 5B are connected to a voltage amplifier circuit in the body composition measuring apparatus 1. The apparatus 1 further includes a detection circuit for shaping the amplified voltage signal, and an A/D converter for converting the shaped, amplified voltage signal from analog form to digital form. The converted digital signal from the A/D converter is entered into the CPU. A weight sensor of the weight meter 2 is also connected to the CPU for calculating the weight value.

The paragraph bridging pages 9 and 10 now reads as follows:

After the completion of entering all the personal body information, the display 8 shows a message indicating that the handgrips 5A and 5B should be grasped. Then the person under test picks up the handgrips 5A and 5B held in the grip holders 7A and 7B with his right and left hands, respectively. Now, the handgrips 5A and 5B are grasped with the hands of the person with his palms in contact with the current supplying and voltage measurement electrodes. Thereafter, the person naturally drops down both arms to take a pose for measurement, thereby starting the measurement, in step S6. Fig. 3(c) shows the condition in which the measurement of bioelectrical impedance is conducted.

B7